Concurrence Sheet

CCN: 105729

Required Reviewers

Title	Name	Concurrence required (Check appropriately)	Initials	Date	Order
Project Manager	J. P. Betts	☒	JPB	11/29/04	
Manager of Facilities	A. Beckman	☐			
Manager of Functions	C. M. Albert	☐			
Deputy Project Director	S. F. Piccolo	☐			
Engineering Manager	R. J. Tosetti	☐			
E&NS Manager	F. Beranek	☒	FJB	11/24/04	
Process Operations Manager	K. J. Rueter	☐			
Construction Manager	J. C. Dougherty	☐			
Project Controls Manager	D. S. Hardin	☐			
Business Manager	C. E. Rogers	☒	CER	11/09/04	
Contracts Manager	J. M. Armstead	☒	JMA	11-24-04	
QA Manager	G. T. Shell	☐			
HLW Area Project Manager	P. W. Schuetz	☐			
LAW / BOF Area Project Manager	W. T. Clements	☐			
Pretreatment Area Project Manager	R. E. Lawrence	☐			
Lab Area Project Manager	P. J. Keuhlen	☐			
Research and Technology Manager	W. L. Tamosaitis	☐			
Operations Manager	M. N. Brosee	☐			
Acquisition Services Manager	K. M. Chalmers	☐			
BNI Legal	D. M. Curtis	☐			
Special Projects Manager	H. N. Taylor	☐			

Additional Reviewers

Title	Name	Initials	Date	Order

W. R. Spezialetti — *Print/Type Applicable Line Manager's Name*; *Signature*; 11/24/04 — *Date*

C. L. McMahon — *Print/Type Originator's Name*; *Signature*; 11/24/04 — *Date*

U.S. Department of Energy
Office of River Protection
Mr. R. J. Schepens
Manager
P.O. Box 450, MSIN H6-60
Richland, Washington 99354

CCN: 105729
NOV 2 9 2004

Dear Mr. Schepens:

CONTRACT NO. DE-AC27-01RV14136 – TRANSMITTAL OF DECISION TO DEVIATE FROM THE AUTHORIZATION BASIS FOR THE HANFORD TANK WASTE TREATMENT AND IMMOBILIZATION PLANT (24590-WTP-DTD-ENS-04-0001, REVISION 0)

The purpose of this letter is to provide notification to the U.S. Department of Energy (DOE), Office of River Protection (ORP) of a decision to deviate (DTD) from the authorization basis for the Hanford Tank Waste Treatment and Immobilization Plant. This DTD is being processed in accordance with the Preliminary Safety Analysis Report and project procedures. This letter satisfies the 72-hour written notification requirement.

DTD 24590-WTP-DTD-ENS-04-0001, Revision 0, describes a deviation from the authorization basis documents listed below:

- *Safety Requirements Document Volume II*, 24590-WTP-SRD-ESH-01-001-02, Revision 31
- *Preliminary Safety Analysis Report to Support Construction Authorization; PT Facility Specific Information,* 24590-WTP-PSAR-ESH-01-002-02, Revision 1a
- *Preliminary Safety Analysis Report to Support Construction Authorization; LAW Facility Specific Information,* 24590-WTP-PSAR-ESH-01-002-03, Revision 1
- *Preliminary Safety Analysis Report to Support Construction Authorization; HLW Facility Specific Information,* 24590-WTP-PSAR-ESH-01-002-04, Revision 1a
- *Preliminary Safety Analysis Report to Support Construction Authorization; LAB Facility Specific Information,* 24590-WTP-PSAR-ESH-01-002-06, Revision 0.

The specific deviation from the authorization basis describes two sets of changes from the safety envelope created by the design, fabrication, and use of radial flow high-efficiency particulate air (HEPA) filters in the Hanford Waste Tank Waste Treatment and Immobilization Plant. The first set contains changes from code requirements, and the second set is a clarification of the requirements in the facility preliminary safety analysis reports (as represented by the applicable safety envelope documents).

CCN: 105729

This DTD is necessary to avoid schedule impacts associated with the issuance of design media.

Safety Evaluation 24590-WTP-SE-ENS-04-0212, Revision 0, is included as an attachment to the DTD. Project procedures require that an Authorization Basis Amendment Request (ABAR) reconciling deviations be sent to DOE for approval within 30 days of the DTD approval. However, since additional Integrated Safety Management work for the HEPA systems needs to be completed and the year-end holidays are imminent, Bechtel National, Inc. requests a January 21, 2005 due date (60 days) for the ABAR.

This DTD will be tracked in the Recommendation and Issues Tracking System to ensure attention to process and closure schedules.

Please contact Mr. Mark Platt at 371-3365 for any questions or comments on this transmittal.

Very truly yours,

J. P. Henschel
Project Director

TBR/slr

Attachment - Decision to Deviate 24590-WTP-DTD-ENS-04-0001, Revision 0, plus
accompanying Safety Evaluation 24590-WTP-SE-ENS-04-0212, Revision 0

cc:

Allen, B. T. w/a	WTP	MS7-BSW
Armstead, J. M. w/o	WTP	MS14-3B
Beranek, F. w/o	WTP	MS4-A1
Clements, W. T. w/o	WTP	MS12-2A
Eschenberg, J. w/a (1 hard copy and 1 electronic copy)	ORP	H6-60
Garrett, R. L w/o	WTP	MS4-A1
Gibson, K. D. w/a	WTP	MS4-B1
Hanson, R. L. w/a	WTP	MS12-2B
Henschel, J. P. w/o	WTP	MS14-3C
Keuhlen, P. J. w/o	WTP	MS7-ANW
Lawrence, R. E. w/o	WTP	MS8-A
Lowry, P. w/a	WTP	MS7-ESW
Medsker, M. A. w/a	WTP	MS12-2B
Miller, L. F. w/a	ORP	H6-60
Pisarcik, D. J. w/a	WTP	MS4-A2
Platt, M. A. w/a	WTP	MS4-B1
Rogers, C. E. w/o	WTP	MS14-3C
Ryan, T. B. w/a	WTP	MS4-B1
Sautman, M. T. w/a	DNFSB	A5-17
Schuetz, P. W. w/o	WTP	MS5-I
Short, J. J. w/o	ORP	H6-60
Spezialetti, W. R. w/o	WTP	MS4-B1
Tosetti, R. J. w/o	WTP	MS4-A2
Woolfolk, S. W. w/a	WTP	MS5-G
DOE Correspondence Control w/a	ORP	H6-60
PDC w/a	WTP	MS11-B

Decision to Deviate
24590-WTP-DTD-ENS-04-0001, Revision 0, plus
Accompanying Safety Evaluation
24590-WTP-SE-ENS-04-0212, Revision 0

Decision to Deviate from the Safety Envelope

DTD No: 24590-WTP-DTD-ENS-04-0001 Rev No: 0

The approvers of this form have determined that it is critical to project progress to temporarily deviate from the safety envelope as allowed in RL/REG-97-13. This temporary situation will be corrected no later than 90 days from the date this form is approved by the Area Project Manager. Environmental and Nuclear Safety (E&NS) is responsible for notifying DOE verbally within 24 hours, and in writing (including a copy of this form) within 3 working days, after the DTD is approved.

Safety Evaluation No. 24590-WTP-SE-ENS-04-0212, Rev. 0

Identify the specific design changes that are not in compliance with the safety envelope (include the document numbers of affected design documents).

This DTD describes two sets of changes from the safety envelope created by the design, fabrication and use of radial flow HEPA filters in the WTP facilities. The first are changes from code requirements and the second is a clarification of the requirements in the facility PSARs (as represented by the applicable Safety Envelope Documents [SED]).

Deviation 1

The following describes the proposed changes to two design implementing codes and standards as referenced in the safety envelope. These codes and standards have been referenced in the safety envelope for design of HEPA filtration systems (e.g., housings and filters) serving each of the RPP-WTP processing facilities (PT, HLW, LAB, and LAW). These changes will be added as an ad hoc (i.e., tailoring) standard in the SRD to augment ASME AG-1. These changes will also be reflected in the facility SEDs.

ASME AG-1-1997 with ASME AG-1a-2000 Addenda, Code on Nuclear Air and Gas Treatment (Note: Hereinafter, the Code on Nuclear Air and Gas Treatment) will be cited as ASME AG-1.

The proposed changes to the AG-1 code are being made to tailor specific code articles. Where code tailoring is not identified in the table, the code remains unchanged and applicable to the design. Tailoring is required because of design differences between the radial filter component designs selected for use on the RPP-WTP Project, and the axial filter system components that the AG-1 code has been written to describe. The AG-1 code does not yet contain sections specific to radial filter components. The **attached summary table** identifies the articles to be tailored and provides a brief description and justification for the change.

ASME N509 (R1996), Nuclear Power Plant Air-Cleaning Units and Components.

The proposed changes to the N509 code are limited to the year of issue cited in the design basis. Currently, the Reaffirmed 1996 edition is being implemented by the project as referenced in the Basis of Design. The 2002 edition is being proposed for use for radial filter system components.

Deviation 2

The current wording in the various facility SEDs generally describe the HEPAs as meeting requirements derived from AG-1 or N509. These requirements include a minimum efficiency, media water repellency, and specific test and inspection criteria. Additionally, the SEDs describe performance requirements that are outside the scope of AG-1 and N509. These include the filter's ability to withstand aerosols and caustics that are generated during design basis events (DBE).

As acknowledged above (in Deviation 1) and in the attached summary table, the radial filters will not necessarily meet all explicit requirements of AG-1. To resolve the technical issues associated with the DBE performance requirement assumptions, a facility standards ISM meeting will address the appropriate tailoring of the standard for radial HEPA filters. This DTD, via the attachment, makes the projected changes in the tailoring of AG-1. Facility ISM meetings addressing the applicable environmental conditions for the filtration system will clarify the environmental conditions that will exist upstream of the HEPAs, evaluate the system hazards and control strategies, and clarify the performance criteria expectations for the filters. The ISM process will ensure that the radial filters and other SSCs in each offgas or process system, will deliver results that support the hazard and accident analysis and ensure compliance with the AB. At the conclusion of the ISM, a general ABAR (and possibly facility-specific ABARs) will be prepared that will provide assurance of adequacy of the tailored standard as well as appropriate clarification of the environmental conditions applicable to the design of each system using radial HEPA filters.

Decision to Deviate from the Safety Envelope

DTD No: 24590-WTP-DTD-ENS-04-0001 Rev No: 0

Affected Design Documents		
Number	**Rev.**	**Title**
24590-WTP-3PS-MKH0-T0001	2	Engineering Specification for Safe Change HEPA Filter Housings
24590-WTP-3PS-MKH0-T0002	1	Engineering Specification for HEPA Filters
24590-WTP-3PS-MKH0-T0003	0	Engineering Specification for Safe Change HEPA Filter Housings
DE-AC27-01RV14136	M041	WTP Contract, Section C.7(f)
24590-WTP-DB-ENG-01-001	1b	Basis of Design

Planned Design Documents*		
Number	**Rev.**	**Title**

* These documents have not been issued at the time the DTD is issued, but it is anticipated these will be issued during the 90-day window.

Describe the specific deviation from the safety envelope associated with implementing the change. Identify the AB document(s) and the affected section(s).

Deviation 1

In the case of the changes from the AG-1 code, see the **attached table** for specific AG-1 sections.

Deviation 2

The current PSARs (as represented by the facility-specific SEDs) discuss HEPA filter and facility system design performance criteria as if requirements were uniformly met. In certain instances performance criteria have been inappropriately defined and require clarification. This change will clarify the alignment of the design with the SEDs/PSARs. An example follows.

The SEDs state that HEPA material shall be capable of withstanding 70% relative humidity. The intent of this requirement was to implement ASME N509, Section 4, Functional Design, which states: "heaters should be utilized for air-cleaning units with adsorbers when the relative humidity of air to the adsorber exceeds 70% ...". It should be noted that while relative humidity is certainly an important parameter that impacts HEPA filter life, "70% RH" is not recognized as a performance limiting parameter for HEPA filters, but was intended to be a criteria used in assessing the need for preheaters in the system design.

There are general control strategy statements and assumptions made in many of the SEDs for HEPA filtered systems such as: "C5 ventilation exhaust ... must withstand potential moisture challenges"; "each filter can accommodate 600g of aerosol ..."; and "the material released in this event is highly caustic". BNI will re-evaluate these SED statements. Preliminary conclusions indicate that 1) the moisture challenge text should be clarified in the SED, 2) 600 grams of aerosol can be supported by Engineering, 3) the HEPA is capable of handling "dry" caustic material, and 4) DP trending will alert the operator if hygroscopic action occurs and water does build up on the filter.

Decision to Deviate from the Safety Envelope

DTD No: 24590-WTP-DTD-ENS-04-0001 Rev No: 0

Affected AB Documents			
Number	**Rev.**	**Title**	**Section**
24590-WTP-SRD-ESH-01-001-02	31	Safety Requirements Document	Safety Criterion 4.4-3, Appendix (new)
24590-WTP-SED-ENS-03-002-02	~~0h~~ 0j 0k 11/22/04	Safety Envelope Document; PT Facility Specific Information	3.4.1.3.1.6, 3.4.1.4.1.6, 3.4.1.5.1.6, 3.4.1.5.2.6, 3.4.1.5.3.6, 3.4.3.2, Table 3A-10, 4.3.2.3, 4.3.12.3
24590-WTP-SED-ENS-03-002-04	0i	Safety Envelope Document; HLW Facility Specific Information	3.4.1.2.1.5, 3.4.1.3.1.6, 3.4.1.5, 3.4.3.1, 3.4.3.2, Table 3A-23, 4.3.5.3, 4.3.5.6, 4.3.6.3, 4.3.10.3, 4.3.10.6, 4.4.3, 4.4.3.6, Table 4A-1
24590-WTP-SED-ENS-04-002-06	0	Safety Envelope Document; LAB Facility Specific Information	4.4.2.4.1, 4.4.2.4.2, 4.4.2.4.3, 4.4.2.4.4, 4.4.2.5
24590-WTP-SED-ENS-03-002-03	0i	Safety Envelope Document; LAW Facility Specific Information	4.3.3.4

In addition to the Safety Evaluation referenced above, perform an evaluation to determine the following:

☒ The specific design changes do not cause or threaten imminent danger to the workers, the public, or the environment from radiological, nuclear, or chemical hazards.

Prepared by:

P. Sullivan — *Print/Type Name*

Pat Sullivan — *Signature*

11-22-04 — *Date*

Decision to Deviate from the Safety Envelope

DTD No: 24590-WTP-DTD-ENS-04-0001 Rev No: 0

Decision to deviate from the safety envelope concurred with by:

G. Garcia	Gerard Garcia	23-Nov-04
ADS / DEM Staff Supervisor *(Print/Type Name)*	*Signature*	*Date*
F. Beranek		11/23/04
E&NS Manager *(Print/Type Name)*	Signature	*Date*

NOTE: E&NS is responsible for the 24-hour verbal and 3-day written notifications to DOE-OSR as described above.

Decision to deviate from the safety envelope approved by:

R. Smith		11/23/04
J. Schneider		11/23/04
J. Roth		11/23/04
K. Walvekar		11/23/04
APEM / DEM *(Print/Type Name)*	*Signature*	*Date*
R.Lawrence		11/23/04
P. Schuetz		11/23/04
W. Clements		11/23/04
P. Keuhlen		11/23/04
Area Project Manager *(Print/Type Name)*	*Signature*	*Date*

Attachment 1 - 24590-WTP-DTD-ENS-04-0001, Rev. 0 ASME AG-1 Deviation Summary Table for Radial HEPA Systems

Attachment 2 - Safety Evaluation 24590-WTP-SE-ENS-04-0212, Rev. 0

24590-WTP-DTD-ENS-04-0001 Rev. 0 ASME AG-1 Deviation Summary Table for Radial HEPA Systems

SECTION	DEVIATION	JUSTIFICATION STATEMENT SUMMARY
HA-4420 Access Doors and Panels	Not Applicable	There are no hinges or latches in the Remote Change HEPA Filter Housing filter access door design. The Remote Change HEPA Filter Housings are not designed for manual operation. Therefore, the requirements described in this code article are not applicable.
HA-4443 Clamping Mechanism	Not Applicable to Remote Change HEPA Filter Housings	The Remote Change HEPA Filter Housings use top access to install and remove radial flow HEPA filters that include a gelatinous seal. This article is written specifically for the side access axial flow design, and therefore it does not apply.
	First and Third Paragraph is not applicable to the Safe Change HEPA Filter Housings.	The Safe Change HEPA Filter Housings are manually accessed from the front (e.g. not side access) to install and remove radial flow HEPA filters that include a gelatinous seal. The first and third paragraph in this article is written for a gasket design and side access housings and therefore it does not apply.
HA-5600 & Paragraph TA 4632 Airflow Distribution Test	Flow measurement location is upstream vs. code required downstream.	Radial housing design complicates flow measurement. Testing and analysis (computational fluid dynamic models) performed on prototype units confirm that upstream and inside the filter (inlet) using a hot wire anemometer provides the most repeatable measurement location.
FC-4110 (a) HEPA Filter, FC-4220 Resistance to Airflow	Radial filter design criteria not included in FC Table FC-4000-1.	The RPP-WTP radial flow HEPA filter design originated from UK Atomic Energy Standard Specification AESS 30/95100. The radial flow HEPA filters will be designed for approximately 1.55 inches WC at rated flow of 2,000 cfm. This is just slightly over (~0.15 inches WC) the criterion stated in UK Atomic Energy Standard Specification AESS 30/95100.
FC-4110 (b) HEPA Filter	Filter design exceeds 5 fpm maximum media velocity.	The RPP-WTP radial flow HEPA filter design originated from UK Atomic Energy Standard Specification AESS 30/95100 which states: "The effective area of filter medium used for each insert shall be not less than 3.0 sq m for every 100 l/s rated airflow." The Project proposes to meet this criterion. Supplier testing has demonstrated that ASME AG-1 performance requirements will be met.
FC-4120 Filter Case	The code requires the case to meet the construction requirements of FC-6000.	See tailoring as identified for code Article FC-6000.
FC-5110 Resistance To Airflow	Radial filter design criteria not included in FC Table FC-4000-1.	The RPP-WTP radial flow HEPA filter design originated from UK Atomic Energy Standard Specification AESS 30/95100. The radial flow HEPA filters will be designed for approximately 1.55 inches WC at rated flow of 2,000 cfm. This is just slightly over (~0.15 inches WC) the criterion stated in UK Atomic Energy Standard Specification AESS 30/95100.
FC-6211 Flatness and Squareness	Squareness - Not Applicable	This article is specific to square HEPA filters. At this time, design cylindricity and roundness criteria are being developed by the Supplier. When these criteria are formally submitted to the project for both the remote and safe change filters, this article compliance status will be evaluated and updated.

SECTION	DEVIATION	JUSTIFICATION STATEMENT SUMMARY
FC-6212 Overall Dimensions	Not Applicable.	This article is specific to square HEPA filters. At this time, design cylindricity and roundness criteria are being developed by the Supplier. When these criteria are formally submitted to the project for both the remote and safe change filters, this article compliance status will be evaluated and updated.
FG-4100, FG-4200, & FG-4300	Not Applicable.	Safe Change- Analytical techniques are not applied to the housing sealing surface design. Refer to the description provided for ASME AG-1 FG-4310 and FG-4330.
		Remote Change- Analytical techniques are used to a limited extent in order to verify loads imposed by the remote grapple (used to remove and insert filters) will not exceed stress allowables for the sealing surface materials. Also, refer to the description provided for ASME AG-1 FG-4310 and FG-4330.
FG-4310 HEPA Mounting Frame Deflection Limits	Not Applicable.	The deflection limit criteria presented in this code article are not applied to the sealing surface of the radial housings. Analysis of the radial filter sealing surface is accomplished through physical testing while the sealing surface is subject to the applicable load combinations for the assigned service conditions. Actual testing is a preferred approach as the results may be directly evaluated and are not subject to errors of assumption inherent in analytical techniques.
FG-4330 Impact Loading	Not Applicable.	First, design basis transient pressure events are already accounted for in the structural analysis by inclusion of safety factors. Second, the equation for section modulus as presented in FG-4330 is not applicable to the radial housing sealing surface, which is circular. The basis of the code equation is for a lattice type sealing surface. Third, 3 psi is a completely arbitrary value assigned by Section FG and not based upon system design parameters as required by AG-1 Section HA. For the majority of RPP-WTP filter systems, attempting to design the sealing surface to a load of this magnitude would require a significant over-design of the sealing surface inconsistent with that of the housing pressure boundary itself. This load would, in effect, supercede any of the design pressure loads as defined in AG-1 Sections HA and SA.
FG-5100 Inspection and Testing	Not Applicable - FG-I-1010, -1020, -1021, -1030 second sentence.	Requires dimensional inspections per Appendices FG-I that contain axial housing design criteria. See Appendix FG-I article justification statements.
FG-5210 Alignment	Not Applicable.	Criteria provided are for axial housing design. Intend to replace code text with requirement for Supplier to document manufacturing tolerances applicable to radial design.
FG-5220 Flatness	Not Applicable.	Criteria provided are for axial housing design. Intend to replace code text with requirement for Supplier to document manufacturing tolerances applicable to radial design.
FG-5240 Surface Finish	1st Sentence Not Applicable.	Achieving, inspecting for and verifying a 125 micro in. surface finish is irrelevant to the function of a knife-edge fluid seal. Compliance with the remainder of Article FG-5240 is maintained as a matter of good manufacturing practice.

24590-WTP-DTD-ENS-04-0001 Rev. 0 ASME AG-1 Deviation Summary Table for Radial HEPA Systems

SECTION	DEVIATION	JUSTIFICATION STATEMENT SUMMARY
Appendix FG-1 HEPA Filter Mounting Frames	Fig. FG-I-1000-1 Not Applicable to radial design.	The figure depicts an axial filter housing configuration.
FG-I-1010 HEPA Filter Mounting Frame Dimensions	Not Applicable.	Code text is for an axial flow housing and filter and is therefore not applicable to the radial flow configuration.
FG-I-1020 HEPA Filter Clamping	Not Applicable.	Clamps for safe change fluid seal housings are not intended to provide a "required gasket compression load" as needed for an elastomeric style gasket. Uniformity of gasket compression is also not a design concern. The purpose of the clamps on a safe change fluid seal housing is to provide positive indication to the operator that the filter is fully seated against the sealing surface and knife-edge as well as to ensure the filter remains in place against this surface during a seismic event. There are no clamps on the remote housing design.
FG-I-1021 Galling Prevention	Not Applicable.	There are no "threaded surfaces" in the design of the safe change radial housing clamping mechanism that create a concern for galling. There are no clamping devices in the remote housing seal surface design.
FG-I-1030 Filter Support	2nd Sentence Not Applicable.	The radial filter housings are not designed for walk-in seal surface inspection by personnel. This requirement is intended for walk-in style housings.
ASME N509	Replace ASME N509-1989, Reaffirmed 1996 edition with ASME N509-2002 edition.	Current N509 standard has been revised to reference ASME AG-1 for HEPA filter housings and filters.
ASME N509 Section 4.11.4 Fire Hazard Analysis	Replace 10 CFR 50 Appendix R with 10 CFR 830. Replace NFPA 803 with NFPA 801	RPP-WTP contract requirement.

Safety Evaluation For Design

Safety Evaluation No.:	24590-WTP-SE-ENS-04-0212	**Rev. # 0**
EDR No.:	N/A	**Rev. #**
Design Documents Evaluated:	24590-WTP-DTD-ENS-04-0001	**Rev. # 0**
Consists of Parts: ☒ 1 ☐ 2		
Title: ASME AG-1 Deviations for Radial Flow HEPA Filtration Systems		

Part 1 Safety Evaluation

Complete Part 1 for all design changes requiring this form. Refer to Appendix 4 of 24590-WTP-GPP-SREG-002 for guidance. Part 1 determines whether the design change requires an ABAR. For all questions, provide a "Basis" for the answer in sufficient detail that a knowledgeable individual can identify the technical issues considered and the basis for the determinations. If the answer to questions 2, 3, or 4 is "Yes", an ABAR is required. "Broad scope" and SRD changes also require an ABAR. A "Yes" answer to questions 5 or 6 means that the design change is unacceptable and must be withdrawn and re-engineered. For any change that does cause an SED change, prepare a redline markup of the applicable sections of that document. For BNI-approved changes, print the SE, sign, obtain concurrence signatures, including the affected FNS Supervisor or Regulatory Safety Manager, and return the form to the design document originator for forwarding to PDC with the evaluated design document. Provide a copy of an original of the completed SE and SED redline markup to the E&NS AB Coordinator.

Note: The SED represents the currently approved PSAR safety envelope sections, plus approved changes.

Description of change:

The WTP proposes to use radial flow HEPA filters and associated filter housings in lieu of axial flow filters. Radial filters are not currently covered by ASME-AG-1-1997. In addition, the radial design needs to be reconciled with the description of HEPA filtration requirements and attributes in the various safety envelope documents. See the attachments for details of this change.

		N/A	YES	NO
1.	Does the change affect the safety envelope (SRD and applicable facility SED[s]), or is it a "broad scope" change? (Do not answer this question if already answered on corresponding safety screening/EDR)	☐	☒	☐
	Basis: The deviations listed in the attachments are expected to require revision to the SRD and the facility SEDs. These modifications are considered broad scope changes due to the design changes they impose on the HEPA Filtration Systems. Impact to the requirements of the SRD parent Standards, ASME AG-1-1997 with ASME AG-1a-2000 Addenda, *Code on Nuclear Air and Gas Treatment*, and ASME N509-1989, *Nuclear Power Plant Air Cleaning Units and Components* is also expected. The AB credited safety attributes for a given component within the facility process offgas and ventilation systems, and the systems as a whole, as prescribed in the facility SEDs, may need to be modified to be consistent with actual design attributes. A facility standards ISM meeting will examine the final HEPA filter design, consolidate the safety envelope requirements as given in the parent AB standards and the facility SEDs, and tailor the existing standards and/or select and adopt a new ad hoc implementing standard for radial flow HEPA filters. The ISM process will ensure that radial HEPA filtration systems meet their AB credited safety functions.			
2.	Does the change create a new DBE?		☐	☒
	Basis: Because they are accident mitigation devices, incorporation of radial HEPA filters in design of the filtration system is not expected to create a new DBE. The design of the HEPA systems will meet the environmental conditions assumed in the DBEs and required by the SED, or else address the change in the DBE.			

Safety Evaluation No.:	24590-WTP-SE-ENS-04-0212	Rev. # 0
EDR No.:	N/A	Rev. #

		YES	NO
3.	Does the change result in more than a minimal (≥10 %) increase in the frequency or consequence of an analyzed DBE as described in the SED?	☐	☒
	Basis: The final design for radial HEPAs and housings is not expected to increase the frequency and/or consequences of analyzed DBEs. The performance requirements for the WTP radial HEPA systems are expected to meet those given in ASME AG-1. In conjunction with achieving AB-credited efficiency of particle removal, AG-1 required qualification testing of the filters and housings will further demonstrate the performance of these systems as assumed by the DBE and required by the SED. The deviation from ASME AG-1 predominantly arises because AG-1 currently does not address radial HEPA system components (i.e., housings, housing mounting frames, and filters). The AG-1 standard committee is evaluating radial filter design for inclusion in a future revision to the standard.		
4.	Does the change result in more than a minimal decrease in the safety functions of important-to-safety SSCs or change how a Safety Design Class, Safety Class, or Safety Significant SSC meets its respective safety function?	☐	☒
	Basis: The final design for HEPAs and housings is not expected to result in a decrease in the safety function of any ITS SSCs. The new design will change some design attributes currently required by AG-1 but it is not expected that the radial design will change how this SC/SS SSC meets its safety function. Standards identification ISM meetings will be conducted to assess the acceptability of the design against the performance requirements assumed by the DBEs and SEDs. Adequacy of the new design will be further confirmed through qualification testing of the housings at the vendors shop, independent laboratory qualification testing of HEPA filters, and quality assurance testing of the HEPAs at the Oak Ridge Testing Facility. Confirmatory tests will be considered in ISM meetings.		
5.	Does the change result in a noncompliance with applicable laws and regulations (i.e., 10 CFR 820, 830, and 835) or nonconformance with top-level safety standards (i.e., DOE/RL-96-0006)?	☐	☒
	Basis: The deviations being considered arise primarily because some features inherent in the design of radial flow HEPA filtration systems place those system components beyond the scope of ASME AG-1. Because ASME AG-1 is silent with regard to these components, the WTP proposes to supplement AG-1 with an SRD ad hoc standard (or a tailored AG-1) for radial filters and housings to provide the equivalent level of protection (see question 3). Therefore, the changes are not expected to result in noncompliance with applicable laws, regulations, and top-level safety standards.		
6.	Does the change fail to provide adequate safety?	☐	☒
	Basis: Proceeding with radial HEPA filter and housing design and filtration will: • Not cause or threaten imminent danger to the workers, the public, or the environment from radiological, nuclear, or chemical hazards.		

Safety Evaluation No.:	24590-WTP-SE-ENS-04-0212	**Rev. # 0**
EDR No.:	N/A	**Rev. #**

	YES	NO
• Conform to applicable laws and regulations, top-level standards, and principles, and continue to maintain SRD safety criteria. The ISM standards meetings and associated AB changes will ensure the design continues to remain within acceptable boundaries and that evolution does not produce inconsistencies with the Operational Risk Assessment (ORA) goals. In addition, any modified frequencies or mitigated dose consequences will be limited to no more than insignificant deviations from those in analyzed events. Finally, the final system design will continue to meet the defense in depth and radiological exposure standards requirements, as prescribed by the SRD and the facility SEDs. The ISM meetings will clarify the bounding environmental conditions that the HEPAs and housings are expected to encounter and ensure that credited safety functions are not compromised.		

Affected Authorization Basis and/or SED Documents:

Title	Document Number	Rev	Section
Safety Requirements Document	24590-WTP-SRD-ESH-01-001-02	3i	Safety Criterion 4.4-3, Appendix (new)
Safety Envelope Document; PT Facility Specific Information	24590-WTP-SED-ENS-03-002-02	~~0h~~ 0j 0k ~~1 add~~	3.4.1.3.1.6, 3.4.1.4.1.6, 3.4.1.5.1.6, 3.4.1.5.2.6, 3.4.1.5.3.6, 3.4.3.2, Table 3A-10, 4.3.2.3, 4.3.12.3
Safety Envelope Document; HLW Facility Specific Information	24590-WTP-SED-ENS-03-002-04	0i	3.4.1.2.1.5, 3.4.1.3.1.6, 3.4.1.5, 3.4.3.1, 3.4.3.2, Table 3A-23, 4.3.5.3, 4.3.5.6, 4.3.6.3, 4.3.10.3, 4.3.10.6, 4.4.3, 4.4.3.6, Table 4A-1
Safety Envelope Document; LAB Facility Specific Information	24590-WTP-SED-ENS-04-002-06	0	4.4.2.4.1, 4.4.2.4.2, 4.4.2.4.3, 4.4.2.4.4, 4.4.2.5
Safety Envelope Document; LAW Facility Specific Information	24590-WTP-SED-ENS-03-002-03	0i	4.3.3.4

Safety Evaluation For Design

Safety Evaluation No.:	24590-WTP-SE-ENS-04-0212	**Rev. # 0**
EDR No.:	N/A	**Rev. #**

Safety envelope change required? ☒ Yes ☐ No

ABAR required? ☐ Yes ☒ No

Sign below and return form to design document originator. If an ABAR is required, sign Part 1, complete Part 2, and submit both to the E&NS AB Coordinator.

Safety Evaluation Preparer:	Al Maysam *Print/Type Name*	Mary *Signature*	11/22/04 *Date*
Design Document Originator/Supervisor	Pat Sullivan *Print/Type Name*	Pat Sullivan *Signature*	11/22/04 *Date*

Signature of Originator/Supervisor concurs that description of change is accurate and complete

FNS Supervisor or Regulatory Safety Manager:	Bill Spezialetti *Print/Type Name*	for B. Spezialetti *Signature*	11/22/04 *Date*

Attachments: (page changes for SED changes)

None